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10/776,498

02/10/2004

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EXAMINER

WEISKOPF, MARIE

ART UNIT

PAPER NUMBER

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MAIL DATE

DELIVERY MODE

09/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/776,498 | Applicant(s) OSTEN, GABRIEL F. | |
| | Examiner Marie A. Weiskopf | Art Unit 3661 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 and 6-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4, 6-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4, 5, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (hereinafter "AAPA"), in view of Sprenger et al. (August 1998).

As per claim 4, the applicant discloses as prior art in paragraphs 4-7 of the application (Discussion of the Prior Art) a robot for handling products in a three-dimensional space, said robot comprising a main casting from which a plurality of arms are pivotally joined for rotation about a corresponding plurality of axes, the main casting supporting a servo motor connected individually in driving relation to each of the plurality of arms, a base plate suspended from at least one of the plurality of arms where the at least one arm member includes a detachable joint on an opposed end thereof for joining to the base plate at one of the opposed ends, said plurality of arms acting to constrain the base plate to pure translational motion, the improvement comprising. The APA fails to disclose a sensing means affixed to the base plate for sensing at least one of inclination and rotation of the base plate and producing an electrical control signal, and a control circuit coupled to the servo motors and responsive to said electrical control signal for de-energizing the servo motors.

Sprenger in the same field of invention discloses a sensing means affixed to the base plate for sensing at least one of inclination and rotation of the base plate and producing an electrical control signal (paragraph 4 of the System Overview section), and a control circuit coupled to the servo motors (paragraph 2 of the Abstract) and responsive to said electrical control signal for de-energizing the servo motors (paragraph 4 of the Control System section).

From this teaching of Sprenger, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a robot for picking up and placing products of the AAPA to include an angular rate sensing means affixed to the base plate for sensing at least one of inclination and rotation of the base plate upon detachment of the detachable joint from the base plate and producing an electrical control signal, and a control circuit coupled to the servo motors and responsive to said electrical control signal for de-energizing the servo motors as taught by Sprenger, in order to stop the motors when working outside an allowed rotational range (paragraph 4 of the Control System section).

As per claim 9, the applicant discloses as prior art in paragraph 6 of the application (Discussion of the Prior Art) a robot further including an end effector suspended from the base plate.

3. Claims 6, 7, 8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Sprenger et al. (August 1998), as applied to claim 4 above, and further in view of Foxlin (5,645,077).

As per claims 6-8, the AAPA and Sprenger combination discloses the structural elements of the claimed invention, and discloses using servo motors (Sprenger, paragraph 2 of Abstract). The AAPA and Sprenger combination fails to disclose a sensing means comprising a solid state angular rate sensor that produces an electrical control signal proportional to the rate of rotation of the base plate about a predetermined axis.

Foxlin in the same field of invention discloses a sensing means comprising a solid state angular rate sensor (col. 18, lines 6-7) that produces an electrical control signal proportional to the rate of rotation of the base plate about a predetermined axis (col. 18, lines 7-11).

From this teaching of Foxlin, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the safety device in a robot for handling products of AAPA in view of Sprenger to include a sensing means comprising a solid state angular rate sensor that produces an electrical control signal proportional to the rate of rotation of the base plate about a predetermined axis as taught by Foxlin, in order to generate sensor signals that correspond to rotational accelerations (col. 3, lines 59-60).

As per claims 10 and 11, the AAPA and Sprenger combination discloses the structural elements of the claimed invention, but fails to disclose transmitting an electrical control signal wirelessly to the control circuit and via a cable.

Foxlin discloses the concept of having transmitting an electrical control signal (316) wirelessly (col. 17, lines 7-9) to the control circuit (306) and via a cable (col. 20, lines 14-16).

From this teaching of Foxlin, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sensor of the AAPA in view of Sprenger combination to include transmitting an electrical control signal wirelessly to the control circuit and via a cable as taught by Foxlin for the purpose of flexibility to apply any approximate technology in transmitting a control signal.

As per claim 12, the AAPA and Sprenger combination discloses all the claimed elements as mentioned in claim 4 above, but fails to disclose a sensing means that is battery powered.

Foxlin in the same field of invention inherently discloses and a sensing means that is battery powered as evidenced by disclosing the use of a solid state angular rate sensor (col. 18, lines 6-7). A battery power source would be needed to power the sensor.

From this teaching of Foxlin, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the safety device in a robot for handling products of the AAPA in view of Sprenger to include a battery powered sensing means comprising a solid state angular rate sensor that produces an electrical control signal proportional to the rate of rotation of the base plate about a predetermined axis as taught by Foxlin, in order to keep the sensing means powered.

Response to Arguments

4. Applicant's arguments filed 6/18/07 have been fully considered but they are not persuasive. Applicant argues that the Sprenger et al publication is concerned with an XY stage capable of high precision positioning of tools and in the article that authors criticize the Delta robot. Examiner agrees, however, Sprenger et al does indeed teach having an emergency stop when the slide leaves the allowed rotational range, which is determined from an angular rate sensor. This is solving the same problem as presented by the applicant. There is a need for the controller to toggle an emergency stop and this is done by measuring a rotational angle. It would have been obvious to one having ordinary skill in the art at the time of the invention to be able to use this same concept of a similar, although different, robot to be able to stop when the angular sensor senses something out of its range.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3661

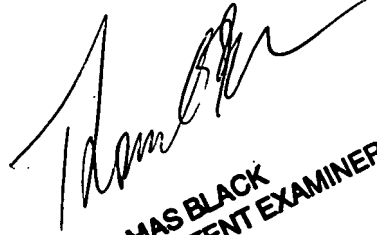
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marie A. Weiskopf whose telephone number is (571) 272-6288. The examiner can normally be reached on Monday-Thursday between 7:00 AM and 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MW



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